

AMENDMENTS TO THE CLAIMS:

The listing of claims will replace all prior versions, and listings of claims in the application:

LISTING OF CLAIMS:

1. (Currently Amended) A plug-in furnace and kiln-oriented video camera, comprising:

a body of a video camera, a video recorder (23), a monitor (24) and a digital thermometer (25);

wherein the body of a video camera comprises a video camera (19), a pick-up gun (16), a pipe-typed cooler (9), a sealing device (15), a sight hole (21), a blow-down ring (22), and a temperature measurement element (20);

wherein the video camera (19) is installed at a front end of pick-up gun (16), inserted into the furnace through the pipe-typed cooler (9) installed at the flange short pipe (4) of a furnace shell;

wherein the temperature measurement element (20) is located near the top of video camera (19) in pick-up gun (16);

a ring gap 28 of said video camera (19) is formed between said blow-down ring (22) and said video camera (19);

a double sealing structure of valve (13) and said sealing-sheath device (15);

wherein said video camera (19) comprises a lens of wide angle, with an angle of view in the range of ~~90-120°~~ 90-120 degrees;

a double gas protection for blow-down wind through the ring gap via an inner wind from sight hole (21) and an outside blow-down from sight hole (21) ~~is employed~~;

a video recorder (23), monitor (24) and digital thermometer (25) are placed outside the furnace shell, connected through a cable line to the video camera (19) and

the temperature measurement element (20)[[.]];

wherein the furnace and kiln comprise a blast furnace of iron-smelting (1);

wherein the video camera (19) is a micro video camera;

wherein the pipe-typed cooler (9) has a diameter ranging up to 60-200 mm and a length ranging up to 200-3,000 mm;

wherein the sight-hole (21) has an aperture up to $\Phi 3 - \Phi 15$ mm; and

wherein the width of the gap of the blow-down gap (28) is 0.2 – 3.0 mm.

2. (Cancelled)

3. (Currently Amended) The plug-in furnace and kiln-oriented video camera of claim [[2]]1, wherein the micro video camera uses CCD with a wide range of light sensing.

4. (Currently Amended) An image processing system, comprising:

a body of a video camera, which receives infrared light emitted from a furnace charge and the light is transformed into an infrared image of a burden and an adjacent equipment in a furnace, when the furnace operates without visible light;

a computer for making an image process for the image, and obtaining the quantitative data of gas distribution and temperature distribution of the burden; and

a color monitor, in accordance with a relative relation between the strength of infrared light and the temperature of a measured object, to transform gray values of various points in the image into temperature value, and to be displayed in the distribution status of temperature or gas for the burden in the forms of a STN color diagram, a numerical diagram and a curve diagram[[.]];

wherein the video camera (19) is a micro video camera;

wherein the video camera comprises:

a pipe-typed cooler (9) having a diameter ranging up to 60 – 200 mm and a length ranging up to 200 – 3,000 mm;

a sight-hole (21) having an aperture up to $\Phi 3 - \Phi 15$ mm;

a blow-down ring (22), wherein a ring gap (28) is formed between said blow-down ring (22) and said video camera (19); and

the width of the gap of the blow-down gap (28) is 0.2 – 3.0 mm.

5. (Cancelled)

6. (Original) The image processing system of claim 1, wherein the micro video camera uses CCD with a wide range of light sensing.